

IN THE UNITED STATES DISTRICT
COURT FOR THE EASTERN DISTRICT
OF MISSOURI EASTERN DIVISION

TAMIA BANKS, on behalf of herself and all
others similarly situated,

Plaintiff,

v.

COTTER CORPORATION, *ET AL.*,

Defendants.

No. 4:18-CV-00624-JAR

DECLARATION OF DR. MARVIN RESNIKOFF

I am Marvin Resnikoff, PhD who files this my declaration under penalty of perjury. I am a physicist who has been studying issues related to radioactive materials and their disposal for over 40 years. My true and correct resume is attached as exhibit “A”. I am personally familiar with the issues relating to the radioactive environmental contamination in St. Louis which forms the basis of the claimed damages in this lawsuit; including but not limited to, how the material was created and ultimately disposed of leading to the contamination of Coldwater Creek.¹ I have read the plaintiff’s motion for remand and the defendants opposition. I offer the following statements for the Court’s Consideration:

- 1) The wastes which are the cause of the contamination of Coldwater Creek are known in the scientific and regulatory communities as Uranium Mill Tailings. These wastes were created

¹ In particular, as a member of Congressman John LaFalce’s Advisory Committee, I reviewed Mallinkrodt’s mill tailings sent to the Lake Ontario Ordnance Works in Western New York. I also served as an expert witness for plaintiff’s in cases involving the Conquista and Panna Maria uranium mining and milling operations in Texas, the Homestake mill near Milan, New Mexico, the Cotter mill in Canon City, Colorado, and other uranium operations.

as a result of the milling of Uranium Ore to produce uranium metal by Mallinckrodt at a site in downtown St. Louis.

- 2) I have reviewed the licenses which Cotter claims relate to the disposal of the materials which are claimed to have caused the damages sustained by the plaintiff. The licenses held by Cotter regulate the manner in which it handled the radioactive materials contained in the mill tailings. You will note that the license contains the procedures for handling the materials when Cotter was drying them prior to shipment to its operations in Colorado. This is an extremely important distinction. While the materials themselves were unregulated at the time the regulations governing exposure to workers and members of the public were. In other words, Cotter needed no specific license to own or possess the materials at the time. Once it decided to handle and process the mill tailings it did. No claims have been made that I am aware of relating to the active handling of the mill tailings while Cotters active operations were ongoing for two reasons. One, the materials contaminating Coldwater Creek are Uranium Mill Tailings and by definition were not byproduct material until the passage of the Uranium Mill Tailings Act of 1978. This fact is well known in the scientific and regulatory communities. The AEC licenses refer only to U-238 and not to its decay products including Ra-226 and to thorium, which are not source material and by-products. Secondly, the claims in this case relate to how Cotter disposed of the materials when it abandoned them in the open environment. No Atomic Energy Commission license was ever issued allowing Cotter to dispose of the materials that I am aware of.
- 3) I am unaware that any “nuclear incident” took place while Cotter was operating in the area.

I declare under the penalty of perjury that the foregoing is true and correct.

Dated: July 9, 2018

Marvin Resnikoff

Marvin Resnikoff, PhD



RADIOACTIVE WASTE
MANAGEMENT ASSOCIATES

Marvin Resnikoff, Ph.D.

Resume

EDUCATION:

Ph.D., Physics
M.S., Physics
B.A., Physics/Math

1965, University of Michigan
1962, University of Michigan
1959, University of Michigan

SUMMARY OF PROFESSIONAL EXPERIENCE:

Marvin Resnikoff is Senior Associate at Radioactive Waste Management Associates and is an international consultant on radioactive waste management issues. He is Principal Manager at Associates for dose reconstruction and risk assessment studies of radioactive waste facilities and transportation of radioactive materials. A nuclear physicist and a graduate of the University of Michigan, Dr. Resnikoff has worked on radioactive issues since his first project at West Valley, New York in 1974. Throughout his career, he has assisted public interest groups and state and local governments across the US, Canada, Germany and England on radioactive waste storage and transportation issues. He has authored or co-authored four books on radioactive waste issues including *Living Without Landfills*, regarding low-level waste landfills, and *The Next Nuclear Gamble*, regarding transportation of radioactive waste. .

Radiological Implications of Fracking. Dr. Resnikoff examined the radiological implications of fracking in papers on indoor radon concentrations and drill rock disposal in landfills from the Marcellus shale formation. For Delaware Riverkeepers (PA), FreshWater Accountability Project (OH) and Residents for the Protection of Lowman and Chemung (NY) he wrote reports that examined the implication of disposal of drill cuttings and drill fluids on landfills and the environment. He examined several fracking sites in Pennsylvania. In October 2011, he was an invited panelist at the annual conference of the Water Environment Federation on the subject of radioactivity in Marcellus shale wastes.

Dose Reconstruction. He has conducted dose reconstruction studies of oil pipe cleaners in Mississippi and Louisiana, residents of Canon City, Colorado near a former uranium mill, residents of West Chicago, Illinois near a former thorium processing plant, and residents and former workers at a thorium processing facility in Maywood, New Jersey. He has also served as an expert witness for plaintiffs in Karnes County, Texas, Milan, New Mexico and Uravan, Colorado, who were exposed to radioactivity from uranium mining and milling activities. He has worked on personal injury cases involving former workers and residents at the ITCO and other oil pipe cleaning yards involving NORM in Louisiana and Texas. He also evaluated radiation exposures and risks in worker compensation cases involving former workers at Maywood Chemical Works thorium processing

plant. He also served as an expert witness in a case involving the Port St. Lucie reactors and brain cancer developed by two children and in a case involving clean-up of an abandoned radioactive materials processing facility in Webster, Texas. He investigated phosphogypsum plants in Florida, Texas and Alberta, Canada and served as an expert witness in a personal injury case involving a Texas phosphogypsum worker. He served as an expert witness in a case involving plutonium workers at INEEL, and federal border guards in Brownsville, TX. He is also a member of the Health Physics Society.

Decommissioning. In February 1976, assisted by four engineering students at State University of New York at Buffalo, Dr. Resnikoff authored a paper that, according to *Science*, changed the direction of power reactor decommissioning in the United States. His paper showed that power reactors could not be entombed for long enough periods to allow the radioactivity to decay to safe enough levels for unrestricted release. The presence of long-lived radionuclides meant that large volumes of decommissioning waste would still have to go to low-level or high-level waste disposal facilities. He assisted public interest groups and served as an expert witness before the NRC on decommissioning the Yankee-Rowe, Diablo Canyon, Big Rock Point and CT Yankee reactors.

He conducted studies on the remediation and closure of the leaking Maxey Flats, Kentucky radioactive landfill for Maxey Flats Concerned Citizens, Inc. and of the leaking uranium basin on the NMI/Starmet site in Concord, Massachusetts under grants from the Environmental Protection Agency. He co-authored a study on the cost of remediating the former West Valley, New York reprocessing plant site. He also conducted studies of the Wayne and Maywood, New Jersey thorium Superfund sites and proposed low-level radioactive waste facilities at Martinsville (Illinois), Boyd County (Nebraska), Wake County (North Carolina), Ward Valley (California) and Hudspeth County (Texas). He also served as an expert witness for CRPE, a public interest groups, regarding the proposed expansion of the Buttonwillow, California NORM landfill and for Earthjustice re. the licensing of an irradiation facility near the Honolulu airport in Hawaii. In August 2010, he was an invited panelist at President Obama's Blue Ribbon Commission on Nuclear Safety.

Transportation of Irradiated Nuclear Fuel. In addition to dose reconstruction and decommissioning cases, Dr. Resnikoff also works on the risk of transporting radioactive material. Under a contract with the State of Utah, Dr. Resnikoff was a technical consultant to DEQ on the proposed dry cask storage facility for high-level waste at Skull Valley, Utah. He assisted the State on licensing proceedings before the Nuclear Regulatory Commission. He has also prepared studies on transportation risks and consequences for the State of Nevada and the Nevada counties: Clark, White Pine, Lander and Churchill. In addition, he worked for the Southwest Research and Information Center and New Mexico Attorney General on shipments of plutonium-contaminated waste to the WIPP facility in New Mexico. In June 2000, he was appointed to a Blue Ribbon Panel on Alternatives to Incineration by DOE Secretary Bill Richardson. He served as a consultant to the New York Attorney General on air shipments of plutonium through New York's Kennedy Airport, and transport of irradiated fuel through New York City. On hearings before state commissions and in federal court, he investigated proposed dry storage facilities at the Point Beach (WI), Prairie Island (MN), Palisades (MI), Maine Yankee, Connecticut Yankee and Vermont Yankee reactors. He is presently working for the State of Nevada on Yucca Mountain repository issues before the Nuclear Regulatory Commission (NRC). He also served as an expert witness for Earthjustice on a proposed

NRC license for a food irradiator at the Honolulu, Hawaii airport, In 2013, he was an invited panelist before the Nuclear Waste Technical Review Board, Implication of High Burnup nuclear Fuel on decommissioning and transportation.

Dr. Resnikoff is an international expert in nuclear waste management, and has testified often before State Legislatures and the U.S. Congress. In Canada, he conducted studies on behalf of the Coalition of Environmental Groups and Northwatch for hearings before the Ontario Environmental Assessment Board on issues involving radioactive waste in the nuclear fuel cycle and Elliot Lake tailings and the Interchurch Uranium Coalition in Environmental Impact Statement hearings before a Federal panel regarding the environmental impact of uranium mining in Northern Saskatchewan. He also worked on behalf of the Morningside Heights Consortium regarding radium-contaminated soil in Malvern and on behalf of Northwatch regarding decommissioning the Elliot Lake tailings area before a FEARO panel. He conducted a study for Concerned Citizens of Manitoba regarding transportation of irradiated fuel to a Canadian high-level waste repository. He authored a report for Greenpeace on the environmental assessment of a proposed intermediate level waste repository under Lake Huron, and for the Provincial Womens Council of Ontario on radioactive waste management costs in a proceeding before the Ontario Energy Board. As part of an international team of experts for the State of Lower Saxony, the Gorleben International Review, he reviewed the plans of the nuclear industry to locate a reprocessing and waste disposal operation at Gorleben, West Germany. He presented evidence at the Sizewell B Inquiry on behalf of the Town and Country Planning Association (England) on transporting nuclear fuel through London.

He has extensively investigated the safety of the West Valley, New York and Barnwell, South Carolina nuclear fuel reprocessing facilities. His paper on reprocessing economics (Environment, July/August, 1975) was the first to show the marginal economics of recycling plutonium. He completed a more detailed study on the same subject for the Environmental Protection Agency, "Cost/Benefits of U/Pu Recycle," in 1983. His paper on decommissioning nuclear reactors (Environment, December, 1976) was the first to show that reactors would remain radioactive for several hundred thousand years. In March 2004, Dr. Resnikoff was project director and co-author of a study of groundwater contamination at DOE facilities, *Danger Lurks Below*.

Dr. Resnikoff has prepared reports on incineration of radioactive materials, transportation of irradiated fuel and plutonium, reprocessing, and management of low-level radioactive waste. He has served as an expert witness in state and federal court cases and agency proceedings. He has served as a consultant to the State of Kansas on low-level waste management, to the Town of Wayne, New Jersey, in reviewing the cleanup of a local thorium waste dump, to WARD on disposal of radium wastes in Vernon, New Jersey, and to the Illinois Attorney General on the expansion of the spent fuel pools at the Morris Operation and the Zion reactor, to the Idaho Attorney General on the transportation of irradiated submarine fuel to the INEL facility in Idaho and to the Alaska Attorney General on shipments of plutonium through Alaska. He was an invited speaker at the 1976 Canadian meeting of the American Nuclear Society to discuss the risk of transporting plutonium by air. In July and August 1989, he was an invited guest of Japanese public interest groups, Fishermen's Cooperatives and the Japanese Congress Against A- and H- Bombs (Gensuikin).

Dr. Resnikoff was formerly Research Director of the Radioactive Waste Campaign, a public interest organization conducting research and public education on the radioactive waste issue. His duties with the Campaign included directing the research program on low-level commercial and military waste and irradiated nuclear fuel transportation, writing articles, fact sheets and reports, formulating policy and networking with numerous environmental and public interest organizations and the media. He is author of the Campaign's book on "low-level" waste, *Living Without Landfills*, and co-author of the Campaign's book, *Deadly Defense, A Citizen Guide to Military Landfills*.

Between 1981 and 1983, Dr. Resnikoff was a Project Director at the Council on Economic Priorities, a New York-based non-profit research organization, where he authored the 390-page study, *The Next Nuclear Gamble, Transportation and Storage of Nuclear Waste*. The CEP study details the hazard of transporting irradiated nuclear fuel and outlines safer options.

Between 1974 and 1981, he was a lecturer at Rachel Carson College, an undergraduate environmental studies division of the State University of New York at Buffalo, where he taught energy and environmental courses. The years 1975-1977 he also worked for the New York Public Interest Group (NYPIRG).

In 1973, Dr. Resnikoff was a Fulbright lecturer in particle physics at the Universidad de Chile in Santiago, Chile. From 1967 to 1973, he was an Assistant Professor of Physics at the State University of New York at Buffalo. He has written numerous papers in particle physics, under grants from the National Science Foundation. He is a 1965 graduate of the University of Michigan with a Doctor of Philosophy in Theoretical Physics, specializing in group theory and particle physics. Dr. Resnikoff is a member of the American Public Health Association and the Health Physics Society.

PROFESSIONAL EXPERIENCE:

April 1989 - present **Senior Associate**, Radioactive Waste Management Associates, management of consulting firm focused on radioactive waste issues, evaluation of nuclear transportation and military and commercial radioactive waste disposal facilities.

1978 - 1981; 1983 - April 1989 **Research Director**, Radioactive Waste Campaign, directed research program for Campaign, including research for all fact sheets and the two books, *Living Without Landfills*, and *Deadly Defense*. The fact sheets dealt with low-level radioactive waste landfills, incineration of radioactive waste, transportation of high-level waste and decommissioning of nuclear reactors. Responsible for fund-raising, budget preparation and project management.

1981 - 1983 **Project Director**, Council on Economic Priorities, directed project which produced the report *The Next Nuclear Gamble*, on transportation and storage of high-level waste.

1974 - 1981 **Instructor**, Rachel Carson College, State University of New York at Buffalo, taught classes on energy and the environment, and conducted research into the economics of recycling of plutonium from irradiated fuel under a grant from the Environmental Protection Agency.

1975 - 1976 **Project Coordinator**, SUNY at Buffalo, New York Public Interest Research Group, assisted students on research projects, including project on waste from decommissioning nuclear reactor.

1973 **Fulbright Fellowship** at the Universidad de Chile, conducting research in elementary particle physics.

1967 - 1972 **Assistant Professor of Physics**, SUNY at Buffalo, conducted research in elementary particle physics and taught a range of graduate and undergraduate physics courses.

1965 - 1967 **Research Associate**, Department of Physics, University of Maryland, conducted research into elementary particle physics.

PROFESSIONAL ORGANIZATIONS:

Health Physics Society
Water Environment Federation

SPECIAL SPEAKING ENGAGEMENTS:

- 1967 Invited Speaker, w/ O.W. Greenberg, Meeting of the American Physical Society, Washington, D.C., “Symmetric Quark Model of Baryon Resonances,” Conf-670414—6.
- 1976 Invited Speaker, Meeting of the American Nuclear Society, Toronto, Canada, “Comparison of risk assessments of Pu released during transport.”
- 1976 Statement before the Subcommittee on Energy and the Environment of the Interior Committee, House of Representatives, on recycling of plutonium.
- 1977 Statement before the Subcommittee on Government Operations, House of Representatives, on Nuclear Power Costs
- 1979 Chaired panel w/Dr. Karl Morgan and Dr. Alice Stewart, Gorleben International Review, on the health effects of radiation, Hanover, Germany.
- 2000 Invited day-long seminar presentation to the California Department of Health on the health effects of radiation
- 2002 Testimony before the Committee on Transportation & Infrastructure, United States House of Representatives, on transportation of nuclear materials.
- 2003 Presentation before the National Academy of Sciences Study Committee on Transportation of Radioactive Waste, Las Vegas, NV, “Baltimore Tunnel Fire: Implications for SNF Transportation Safety.”
- 2006 Biglin, K. and Resnikoff, M, Emergency Response to a Nuclear Waste Shipment Accident, Inyo County, June 15, 2006, paper presented at ESRI Annual Conference, August 2006.
- 2008 Invited Speaker, Meeting of the American Nuclear Society, Anaheim, CA, “State of Nevada Recommendations for Yucca Mountain Transportation Safety and Security.”
- 2008 Presentation at Waste Management 2008, Phoenix, AZ, “Fugitive Dust Emissions from Uranium Haul Roads.”
- 2008 Presentation at Waste Management 2008, Phoenix, AZ, “State of Nevada Perspective on the US DOE Yucca Mountain Transportation Program.”
- 2011 Invited Panelist, annual conference, Water Environment Federation, Radioactivity in Marcellus shale water.
- 2013 Invited Panelist, Nuclear Waste Technical Review Board, Implication of High Burnup nuclear Fuel on decommissioning and transportation.

Books and Articles

Resnikoff, M, “Expensive Enrichment,” *Environment*, July/August 1975, pp. 28–35.

Harwood, S *et al*, “The Cost of Turning It Off,” *Environment*, December 1976, pp.17-26.

M. Resnikoff, “Environmental Perspective.” Chapter 7 in “The Politics of Nuclear Waste,” edited by William Colglazier, Pergamon Press, 1982

M. Resnikoff, *et al*, “The Next Nuclear Gamble, Transportation and Storage of Nuclear Waste,” Council on Economic Priorities, 1983.

M. Resnikoff, "Shipping Flasks in Severe Rail Accidents," Chapter 18 in "The Urban Transportation of Irradiated Fuel," edited by John Surrey, Macmillan Press, London, 1984.

M. Resnikoff, "Living Without Landfills," Radioactive Waste Campaign, 1988.

M. Resnikoff, *et al*, "Deadly Defense, A Citizen Guide to Military Landfills," Radioactive Waste Campaign, 1989.

M. Marvin Resnikoff, "The Generation Time Bomb: Radioactive and Chemical Wastes." Chapter in "Hidden Dangers: Environmental Consequences of Preparing for War," edited by Anne Ehrlich and John Birks, Sierra Club Books, San Francisco, 1990.

I. Fairlie and M. Resnikoff, "No Dose Too Low," The Bulletin of Atomic Scientists, Nov/Dec 1997.

M. Resnikoff, "Danger Lurks Below," Alliance for Nuclear Accountability, 2004.

M Resnikoff, "Radon in Natural Gas from Marcellus Shale," Ethics in Biology, Engineering & Medicine, Vol. 2, Issue 4, 2011, pp. 317- 331.